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RECENTLY PUBLISHED RESEARCH OF
THE MOSCOW MEDICAL INSTITUTE

Synthesis and Properties of Phosphorylated β -alanine, β -histidine, and α -alanine. S. E. Severin and R. Ya. Yudelovich (Moscow Med Inst)

"Biokhimiya" Vol 12, 1947, pp 105-10

By the action of POCl_3 and alkali, as described for phosphocarnosine, the monophospho derivatives of the following amino acids were prepared: β -alanine, β -histidine, and α -alanine. In β -histidine, the phospho group is attached to the N of the imidazole ring, since the diazo reaction is much weakened. All 3 phosphorylated compounds were decomposed to the extent of 80% on standing for 10 minutes in N HCl solution. The enzymic hydrolysis was rapid and complete when the phosphorylated β -alanine and β -histidine were treated with aqueous extracts of muscle, liver, and kidney tissues. Only up to 5% of the phosphorylated β -alanine was thus enzymically split.

"The Role of Carnosine in the Decarboxylation of Oxalacetic Acid," C. A. Shishova (Moscow Med Inst)

"Biokhimiya" Vol 12, 1947, pp 201-9

Oxalacetic acid is decarboxylated by muscle plasma and by aqueous frog muscle extract. Pyruvic acid is un-

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affected under the same conditions. On dialysis for 24-30 hours, the muscle plasma loses its decarboxylating effect, which, however, is restored on the addition of carnosine.

"New Data on Staining by Gram's Method," L. M. Tarasovich (Chair of Biology, Moscow Med Inst), 3 pp

"Mikrobiologiya" Vol XVI, No 3, 1947

Study of *Saccharomyces cerevisiae* during the extraction of nucleic acid from yeasts, and of the virus proteins. (16T26)

"Determination of Vitamin B₁ in Skin Dialyzate," V. A. Rakhmanov and A. N. Tikhomirova (Moscow Med Inst)

"Vestnik Venerol i Dermatol" No 2, 1947, pp 10-12

Vitamin B₁ was determined on urine and skin dialyzates both before and after loading by daily injection of 10 mg over a 5-10 day period. The dialyzates were prepared by attaching a glass bell to the chest, pouring H₂O into the bell, and taking aliquot portions at various intervals. On the 3d-4th day after loading it is possible to detect B₁ in skin dialyzates. No relation was found between this and the urine B₁ level. The skin elimination should be taken into account in tracing sources of vitamin deficiencies.

"Effect of Sodium Fluoride on Cholesterol in the Blood of Normal and Experimentally Hypercholesteremic Rabbits," M. A. Levchenko (1st Moscow Ord of Lenin Med Inst)

"Farmakol i Toksikol" Vol 9, No 3, 1946, pp 35-41

The cholesterol (I) content of normal rabbit blood is decreased by NaF. Rabbits receiving I daily in sunflower seed oil, with or without NaF, were tested at 10-day intervals for 90 days. The rise in Blood I was substantially smaller in rabbits receiving NaF than in the controls, until the last tests, when the curves met. Oral dosage with NaF inhibits excessive accumulation of I in the blood. An improved determination of I in blood is described.

"Medicinal Effects of Pomegranates," D. M. Rossiyskiy (Moscow Med Inst)

"Farmatsiya" Vol 9, No 2, 1946, pp 31-2

All parts of the pomegranate tree (*Punica granatum L.*) have some physiological action. Bark from roots, trunk, or branches is anthelmintic; the fruit rind is rich in tannins, gums, and extractives; the fruit juice contains 80-90% H₂O, 8.2-19.7% invert sugar,

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4.8-10.6% glucose, 0.46-3.6% citric acid, 0.005% boric acid, and up to 7 mg % ascorbic acid. Powdered pomegranate bark is effective in diarrhea and acute enterocolitis, but less effective in chronic enterocolitis. Pomegranate juice is low in vitamin content, but still has more nutritional than medical significance.

"Influence of Various Analeptics on Respiration in Morphine Poisoning," A. A. Myazdrikova (Moscow Ord of Lenin Med Inst)

"Farmakol i Toksikol" Vol 9, No 5, 1946, pp 3-8

Rabbits and cats, with respiratory nerve centers depressed by intravenous injection of 2% morphine-HCl solution, were given nontoxic doses of analeptics intravenously. In their descending order of respiratory stimulating activity they were: lobeline-HCl (I), strychnine-HNO₃ (II), caffeine-BzONa (III), camphor (IV) and atropine sulfate (V). Repetition of the analeptic doses enhanced the effect with II, III, and sometimes IV, but impaired the effect of I and V. Duration of the effect was longest with II and with larger dose of III; it was much shorter with I, IV and V. The highest activity: toxicity ratio was shown by III. Respiration curves are shown for five test rabbits but not for the controls.

"Effect of Hydrogen Sulfide and Sodium Sulfide on Anaphylactic Shock," E. B. Ebskiy and M. A. Frolova (1st Med Inst, Moscow)

"Byull Eksper Biol i Med" Vol 22, No 5, 1946, pp 57-60

Guinea pigs fully sensitized to horse serum suffered fatal anaphylactic shock on intracardiac injection of the antigen. Administration of H₂S or Na₂S just before the antigen did not alter this outcome. The sensitized animals could withstand about twice the dose of sulfide which was effective in the controls, but sulfide clearly does not produce sensitization.

"The Excited State of Cathodic Hydrogen," N. I. Kobosev, V. V. Monblanova and S. V. Kirilova (State U and 2d Med Inst, Moscow)

"Zhurnal Fizicheskoy Khim" Vol 20, 1946, pp 653-66

It is concluded that H⁺ ions pass through two stages before they reach the state of normal H₂ molecules. These stages are H atoms and excited H₂ molecules. Since electric current deposit H also on those parts of the cathode surface that possess only weak adsorptive forces, the average energy of adsorption of cathodic H is smaller than that "naturally" adsorbed H. The difference between the two energies is greater the greater the overvoltage η . Therefore, from the cathodes with a great η even H atoms can be desorbed, and those with a medium η lost H as excited molecules. Atoms of H reduce

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WO₃, excited molecules reduce WO₃ + Pt, and ordinary molecules do not reduce WO₃ at all. Experimental reactions are described.

"Microdetermination of Sulfanilguanidine (Sulgine) and Its Glucoside in Blood," A. V. Stepanov and V. V. Mamayeva (Org Chem Lab, Ist Moscow Med Inst)

"Klin Med" Vol 24, 1946, pp 76-7

While sulfanilguanidine is sparingly soluble in water, its newly synthesized glucoside is easily soluble in water, is stable in neutral and alkaline solution, is only decomposed in acid solution, and is slightly toxic. For microanalysis by diazotization and colorimetry, 0.2 mg blood is placed in a test tube, 0.5 ml water added, and the proteins are precipitated with a drop of a saturated solution of alum, with a pinch of CaCO₃ added; the test tube is heated for 10 minutes on a boiling water bath and refilled with water to the former mark. The protein precipitate is filtered off, washed with 0.5 meters water; to the filtrate, 2 drops of 10% HCl is added, and then 1 drop of NaNO₂ solution. Diazotization is completed in 10 minutes in a water bath of 30 degrees. Four drops of a 10% alkaline solution and 4 drops of 2% thymol in alkali are added and the tube is placed on a 30 degree water bath for 10 minutes. The liquid is then filtered through cotton and is ready for colorimetry. Standard solutions are prepared by dilution of a stock solution of 8 mg sulfanilguanidine in 100 ml water giving 8 solutions from 1 to 8 mg/100 ml. With this standard series, comparison color standards are set up by mixing 0.1 ml of 1% K₂Cr₂O₇, 1.0-1.5 ml 2% Co(NO₃)₂ and 1.0-10.0 ml H₂O, corresponding to the standard sulfanilguanidine contents.

"Alkylation of Amino Compounds in Liquid Ammonia: I. Alkylation of Aminoquinolines," L. V. Antik and N. S. Spasokukotskiy (2d Moscow Med Inst)

"Zhurnal Obshchey Khimii" Vol 16, 1946, pp 2109-12

Liquid NH₃ was successfully used as a medium for alkylation of aminoquinolines, through the intermediate formation of the Na derivatives; low temperatures also tended to reduce the possible side reactions. In a glass ampoule NaNH₂, prepared in 10% excess by solution of Na in liquid NH₃ in the presence of Fe oxide or nitrate, was treated with 6-methoxy-5-aminoquinoline; the precipitate of NaNH₂ vanished and a red color of the RNHNa compound appeared; Et₂N(CH₂)₃Cl was added, allowed to stand overnight, and NH₃ was then allowed to evaporate; the residue, after solution in Et₂O, drying, evaporation, and rubbing with petroleum ether, gave 88% 6-methoxy-5-(3-diethyl-aminopropylamino)quinoline. The following 6-methoxyquinolines were

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similarly prepared: 8-(3-diethylaminopropylamine), 7-(3-diethylaminopropylamine), 8-bis(3-diethylaminopropyl)amine/quinoline. Physical properties of each are given.

"Effect of Reduced Barometric Pressure on the Histamine Content of the Blood," S. Ya. Kapalanskiy and I Fridlyand (2d Moscow Med Inst)

"Byull Eksper Biol i Med" Vol 20, No 7/8, 1945, pp 54-7

Rabbits in barochambers, with normal or amended diets, were subjected to air pressures corresponding to 6,000-8,000 meters altitude for 60-90 minutes, then immediately tested for histamine content of the blood by Code's modification of Barsoum's method and by the reaction of isolated guinea-pig muscle. Of rabbits with normal diets, 54% showed a rise in blood histamine after low-pressure exposure. If an animal showed rise of histamine after one exposure, the same occurred in succeeding exposures. Animals fed histidine showed a rise in blood histamine after exposure, which was not shown by similarly fed animals that were not subjected to low pressure. Cystine or arginine in the diet had no effect on blood histamine.

"Mechanism of Action of Calcium Iontophoresis on the Eye," A. Ya. Samoilov (Moscow Med Inst)

"Vestnik Oftalmologii" Vol 24, 1945, pp 45-50

Experiments with Ca iontophoresis on the eye indicate the probability of direct entry of Ca ions into the eyeball; although the amount of Ca thus entering cannot be detected chemically, the retinal tissue gives the characteristic contractile reaction to increased Ca concentration. It was shown that the conjunctiva is about 5 times more penetrable than is the skin of the eyelids.

"Action of Magnolia Fuscata Alkaloids on the Cardiovascular System," E. S. Komissarova (Moscow Ord of Lenin Med Inst)

"Farmakol i Toksikol" Vol 8, No 1, 1945, pp 17-21

The mixed alkaloids (I) of dark magnolia (*M. fuscata*) were compared with magnolamine (II) as to cardiovascular effects in frog and rabbit hearts, isolated and in situ. At 0.1-2 parts per million I and II have no significant effect. At 5-10 ppm I has positive inotropic and a less pronounced negative chronotropic effect. At 20-1,000 ppm I is a cardiac depressant; so is II at 10-500 ppm. Cardiac rhythm is accelerated by I, retarded by II. Arterioles are dilated by II, but I and II are constrictors for peripheral and nephritic veins and capillaries. The depressor effect of II may be due either to vasodilation or to cardiac depression. Differences between I and II indicate that I contains an alkaloid (magnolone?) with higher activity as a cardiovascular stimulant.

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